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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/792,003

03/02/2004

Yiping Hu

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04/25/2006

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EXAMINER

AUSTIN, AARON

ART UNIT

PAPER NUMBER

1775

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/792,003	<b>Applicant(s)</b> HU ET AL.	
	<b>Examiner</b> Aaron S. Austin	<b>Art Unit</b> 1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6,10,12-14,16 and 18-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,10,12-14,16,18-43 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

Claim 18 is objected to because of the following informalities: the recitation of "wherein M wherein" should read "wherein M". Appropriate correction is required.

### *Double Patenting*

1. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claim 10 is provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 26 of copending Application No. 11/013,218 (Renteria, et al.).

This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.

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1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 10, 12 to 14, and 16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 15 to 17 and 23 to 25 of copending Application No. 11/013,218 (Renteria, et al.). Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are directed to nickel-base alloy powder compositions containing the same alloying elements with overlapping alloy elemental ranges. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of each alloy elemental range and arrive at the claimed nickel-base alloy powder compositions.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 34-43 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,475,642 B1 (Zhao et al.).

Zhao et al. disclose oxidation-resistant coating compositions formed of an alloy comprising aluminum, tantalum, at least one base metal selected from nickel, cobalt, and iron, at least one precious metal such as platinum, and minor amounts of other elements such as zirconium, hafnium, silicon, and yttrium. Zhao et al. disclose oxidation-resistant alloy coatings for turbine components made from superalloys wherein the alloy coatings contain the same alloying elements as claimed by the applicants with alloy elemental ranges that overlap applicants' claimed alloy elemental range limits. See line 65 in column 1 to line 24 in column 3 and line 35 in column 3 to line 9 in column 9. Further, the thickness of the coating is about 20 to 200 microns (column 8, line 61) or about 75 to 1300 microns for turbine engine components wherein the coating includes a TBC (column 9, lines 5-9). Prior art which teaches a range within, overlapping, or touching the claimed range anticipates if the prior art range discloses the claimed range with sufficient specificity. See MPEP 2131.03 and Ex parte Lee, 31 USPQ2d 1105 (Bd. Pat. App. & Inter. 1993). The Examiner notes that Zhao et al. mention that the oxidation-resistant alloy coatings can be used for protecting turbine engine airfoil components, and those components are expected to have the same structural features (for example, an airfoil having a concave face and a convex face) as claimed by the applicants. Further, Zhao et al. describe examination of the resultant coating using x-ray techniques (column 5, line 34).

Please note, the ranges disclosed by Zhao et al. includes Al at a concentration of 30-55 atom % range which is equivalent to 15-35.5 weight % range (column 3, line 15). Further, the alloy taught includes mixtures of precious metals that include four members of Pt, Hf, Si, Zr, Ta, Re, and Ru (column 4, lines 10-13).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT Patent Application No. WO 2004/016819 A1 (WO '819) in view of U.S. Patent No. 6,475,642 B1 (Zhao et al.), and further in view of U.S. Patent No. 5,141,821 (Lugscheider et al.).

Zhao et al. disclose oxidation-resistant coating compositions and method of production of the same as discussed above.

WO '819 teaches nickel-chromium-aluminum-base alloy compositions that contain a majority of the same alloying elements as claimed by the applicants with alloy elemental ranges that overlap applicants' claimed alloy elemental range limits. See the English-language Abstract on the front page of the document.

WO '819 does not appear to teach the inclusion of Pt, Re, and Ru with reference to claim 10, the inclusion of Hf in a value of 2.0 wt.% and Re with reference to claim 12,

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the inclusion of Hf in a value of 2.0 wt.%, Re, and Ru with reference to claim 13, the inclusion of Hf in a value of 2.0 wt.% with reference to claim 14.

Zhao et al. teach alloy compositions with many of the same alloying elements as claimed by applicant and disclosed by WO '819 that may include mixtures of precious metals in amounts overlapping the claimed ranges, examples of which are Pt, Re, and Ru. It is not clear as to whether or not Zhao et al. teach the claimed value for hafnium as they teach a value of 0.1 atom % to 5 atom % for hafnium alone or in combination with other components.

Lugscheider et al. teach the addition of Hf to a MCrAlY coating to increase mechanical resistance (column 2, lines 37-55) in an amount of from 0.01-75 wt% (column 2, line 31). Therefore, as it is clearly taught by Lugscheider et al. that adding Hf to an MCrAlY coating provides the benefit of increased mechanical resistance at high temperatures and as it is taught by Zhao et al. that the addition of mixtures of precious metals produces a protective layer able to withstand high temperatures, it would have been obvious to one having ordinary skill in the art at the time of the claimed invention to have added Hf to the alloy taught WO '819 and arrive at the claimed nickel-based alloy powder compositions.

With further regard to the values of Hf, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the weight percent for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Still further, the ranges are substantially close to that of

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the instant claims such that one of ordinary skill would have expected compositions that are in such close proportions to those in prior art to be prima facie obvious, and to have same properties. *Titanium Metals Corp.*, 227 USPQ 773 (CA FC 1985).

Claims 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT Patent Application No. WO 2004/016819 A1 (WO '819) in view of U.S. Patent No. 6,475,642 B1 (Zhao et al.).

WO '819 teaches nickel-chromium-aluminum-base alloy compositions that contain most of the same alloying elements as claimed by the applicants with alloy elemental ranges that overlap applicants' claimed alloy elemental range limits. See the English-language Abstract on the front page of the document.

WO '819 does not appear to teach the inclusion of Pt, Re, and Ru with reference to claim 10, or the inclusion of Y in a value of 0.1 to 1.0 wt.%, Zr in a value of 1.0 to 3.0 wt.%, Re, and Ru with reference to claim 16.

Zhao et al. teach oxidation-resistant coating compositions and method of production of the same as discussed above. The compositions may include mixtures of precious metals in amounts overlapping the claimed ranges, examples of which are Pt, Re, and Ru. The precious metals provide the benefit of greater oxidation resistance. See column 4, lines 10-24. Therefore, as it is clearly taught by Zhao et al. that including mixtures of precious metals can increase oxidation resistance, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include



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the claimed precious metals in the compositions taught by WO '819. Thus the claimed invention as a whole is *prima facie* obvious over the combined teachings of the prior art.

Regarding claim 16, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the weight percent for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Further, the ranges are substantially close to that of the instant claims such that one of ordinary skill would have expected compositions that are in such close proportions to those in prior art to be *prima facie* obvious, and to have same properties. *Titanium Metals Corp.*, 227 USPQ 773 (CA FC 1985).

Claims 18-29 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,554,837 (Goodwater et al.) in view of U.S. Patent No. 6,475,642 B1 (Zhao et al.).

Goodwater et al. teach a method for applying a nickel and/or cobalt based superalloy, such as a MCrAlY family alloy, to a jet engine component. The method includes bonding the alloy to a jet engine component surface through laser powder welding. See column 1, lines 39-45. Bonding occurs following heating of the weld area using the laser and a powder alloy feed. A control means controls the laser, powder feed and motion through use of a vision system that digitizes the weld area or article providing a path for the laser welding to follow. See column 2, lines 1-8. Once welded, grinding may be required to remove excess weldment from the component and achieve

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a preferred dimension. See column 4, lines 54-56. The laser used may be any known in the art, specifically including CO<sub>2</sub> lasers. The powder feed operates at a rate of 5 to 15 grams/min. See column 5, lines 4-12.

Goodwater et al. do not teach the MCrAlYX alloy as claimed.

Zhao et al. teach oxidation-resistant coating compositions and method of production of the same as discussed above. Therefore, as it is clearly taught by Zhao et al. that oxidation resistance can be increased by including a MCrAlYX coating as claimed, it would have been obvious to one of ordinary skill in the art to use the composition taught by Zhao et al. as the MCrAlY alloy applied in the method taught by Goodwater et al. Thus the claimed invention as a whole is *prima facie* obvious over the combined teachings of the prior art.

Regarding claims 25 and 31, the cited prior art discloses the claimed invention except for the duplication of layers of MCrAlY. It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply more than one MCrAlY layer, since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claims 26 and 27, Goodwater et al. do not teach a specific range for power of a laser. However, an example is given with use of a CO<sub>2</sub> laser operated at 2.6 to 2.8 kilowatts. It would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the lasers power for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only

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routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Further, the ranges in the example are substantially close to that of the instant claims, particularly claim 26, such that one of ordinary skill would have expected compositions that are in such close proportions to those in prior art to be prima facie obvious, and to have same properties. *Titanium Metals Corp.*, 227 USPQ 773 (CA FC 1985).

Regarding claims 32 and 33, Zhao et al. teach an MCrAlY composition that may or may not include Pt.

Claims 18-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,009,137 (Guo) in view of U.S. Patent No. 6,475,642 B1 (Zhao et al.).

Guo teaches a method for repairing turbine blades composed of superalloy with application of a superalloy that "can be" the same as the blade (column 8, line 4). The method includes grit blasting the work piece, verifying the weld path with a video camera, laser cladding in one or more layers layers, machining excess weld, heat treatment, and FPI inspection. See the abstract and Fig. 5. The power of the laser is within the range of about 100 to about 500 watts (column 6, lines 28-30). The preferred rate of powder discharge is in the range of about 0.01 to 0.10 grams per second column 5, lines 49-50).

Guo does not teach application of the MCrAlYX alloy claimed.

Zhao et al. teach oxidation-resistant coating compositions and method of production of the same as discussed above. Therefore, as it is clearly taught by Zhao et al. that oxidation resistance can be increased by including a MCrAlYX coating as

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claimed, it would have been obvious to one of ordinary skill in the art to use the composition taught by Zhao et al. in the method taught by Guo. Thus the claimed invention as a whole is *prima facie* obvious over the combined teachings of the prior art.

### ***Allowable Subject Matter***

Due to the new grounds for rejection, the previous identification of claims 18 to 33 as being allowed is withdrawn.

### ***Response to Arguments***

Please note, a new Examiner has been assigned to this application.

Applicant's arguments, see pages 13 to 15 of the Remarks/Arguments, filed on February 2, 2006, with respect to the objections directed to the specification and the claims have been fully considered and are persuasive. Therefore, the objections have been withdrawn. However, upon further consideration, new grounds of rejection are made as outlined above.

Regarding the double patenting rejection, the rejection is maintained until the outcome for either case is decided.

Regarding the arguments relating to Zhao et al., an Al concentration overlapping the claimed ranges is disclosed in column 3, line 15. Specifically, the aluminum may

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comprise a value of 30-55 atom % range which equates to 15-35.5 weight % range.

The previous rejections of claims 1 to 6 and 34 to 43 are maintained.


### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron S. Austin whose telephone number is (571) 272-8935. The examiner can normally be reached on Monday-Friday: 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ASA

  
JENNIFER C. MCNEIL  
SUPERVISORY PATENT EXAMINER

4/8/06